Understanding the Early Years

Early Childhood Development in the Montreal study area (Quebec)

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Executive Summary

Understanding the Early Years (UEY) is a national research initiative. It provides communities with information to enable them to make informed decisions about the best policies and most appropriate programs for families with young children. It seeks to provide information about the influence of community factors on children's early development and to improve the community's capacity to use these data in monitoring child development and creating effective community-based responses.

This report is one of twelve community reports describing children's outcomes and explaining them in terms of three factors: family background, family processes, and community factors. Studies in one pilot community and five study communities were conducted in 2000-2001. This report is based on one of seven communities studied in 2001-2002. Children's outcomes were assessed in three major categories: physical health and well-being, cognitive skills, and behavioural measures.

Each evaluation comprised several measures:

- Family background includes information on the parents' income, level of education, and occupational status;
- Family processes include positive parenting practices, engagement in learning activities, family functioning, and maternal mental health;
- Community factors include social support and social capital, neighbourhood quality and safety, use of recreational, cultural, and educational resources, and residential stability.

Data for these reports were derived from several sources:

- The National Longitudinal Survey of Children and Youth (NLSCY) Community Study is a national instrument used to gather data directly from parents and children concerning the health and well-being of Canada's children 5-6 years of age;
- The Early Development Instrument (EDI) is based on a teachers' checklist of their kindergarten students' that assesses how prepared children are for learning at school;
- The NLSCY and EDI data collected from the study area allows for comparison across the seven UEY communities. Where possible, the outcomes of the children in this community were compared with averages for their province and for Canada as a whole. If data were not available at those levels, the outcomes of the children are compared across the seven UEY communities of Hampton, New Brunswick; Montreal, Quebec; Dixie-Bloor – Mississauga, Ontario; Niagara Falls, Ontario; South Eastman, Manitoba; Saskatoon, Saskatchewan; and Abbotsford, British Columbia.

This report provides results from the Montreal study area. In general, the children in the study area, which represents only 10% of the total Montreal area (Appendix A), show signs of positive development and preparedness for learning at school. The children in Montreal fared well in physical health and well-being, social competence, and communication skills and general knowledge. There are, however, developmental outcomes which could be improved. The community would benefit from efforts to improve neighbourhood safety and quality, and increased social support. The study showed that parents take a less active part in the learning activities of their children and do not use community resources fully. These factors contributed to the low outcomes of children in the study area in some cognitive and behavioural aspects of development.

The community would also benefit from efforts to improve other domains. The Montreal study area has a high prevalence of hyperactive children. It should be noted that this was based on the parent's perception and not a professional diagnosis. Also, there is a high proportion of children with low scores in emotional maturity. Since behavioural problems upon entry to school tend to persist throughout the schooling years, they are a risk factor for low school achievement and disaffection from school. In addition, since students with behavioural problems tend to be concentrated in certain classes in a few schools, the risks associated with behavioural problems are compounded. However, the frequency of other behavioural problems assessed (emotional disorders and indirect aggression, for example) is lower than the national norm, and the children scored high on pro-social behaviour.

Valuable lessons have been learned from the UEY initiative about the needs and strengths of communities with different economic, social, and physical characteristics, and about how they are each working to improve their young children's outcomes. This community-based research is important because it allows a community to understand how well its youngest citizens are developing and lends insight into which factors contribute to success and warrant further consideration.

Study Highlights

Approximately 40% of families in the Montreal study area have low incomes, 34.5% are single-parent families, and 23.1% of mothers have not finished high school. Low socio-economic status families tend to settle in the northwest and in the east along the St. Lawrence River. Many low-income children are faring quite well, while a good number of children in relatively affluent neighbourhoods had low scores on several of the outcomes.

Results based on the Early Development Instrument (EDI), a measure derived from reports by children's kindergarten teachers, indicated that children in the study area fared well in physical health and well-being, social competence, and communication skills and general knowledge. The Montreal area scored low in language and cognitive development and emotional maturity.

Findings based on direct assessments of children's cognitive development and vocabulary indicated that they scored higher than the national norm for cognitive development and below the national norm for vocabulary. It should be pointed out that approximately 18% of the children assessed came from families who spoke neither French nor English. The children themselves often have a limited knowledge of these languages, in which the assessments were conducted.

The prevalence of children with behavioural problems was close to the national norm, except for children with hyperactivity-their prevalence was more than one and a half times the national norm.

The relationship of family background, family processes, and community factors from the NLSCY in relation to the EDI domain scores were studied for all seven 2001-02 UEY communities together.

- The parents' level of education, whether the parents were working outside the home, social support, and use of community resources were the most important variables related to the cognitive domain.
- Positive parenting[1] was by far the most important factor explaining the outcomes in the behavioural domain, followed by the mother's mental health, and community social capital.
- Whether the child was living in a two parent or single parent family and whether the father was working outside the home were the most important variables influencing physical health and well-being.

While family background was particularly important in the cognitive domain, the role of positive parenting was an especially important predictor of behaviour problems.

[1] This "style" of parenting, called "authoritative" parenting, is characterized by parents monitoring their children's behaviour, being responsive to their needs, and encouraging independence with a democratic approach. It stands in contrast to "authoritarian" parenting, characterized by parents being highly controlling and somewhat harsh in their approach to discipline, and "permissive" parenting, characterized by parents being overly-indulgent and setting few limits for behaviour.

According to the NLSCY data, use of resources is not very high in the Montreal study area, as shown by a score of 2.8 out of 10. In all seven 2001-02 study area, the same score was only 3.4.

Use of resources was explored further by considering the availability of educational, cultural and recreational resources for the seven UEY communities. In the Montreal study area, the availability of educational resources was 88.1%, cultural resources was 82.6% and recreational resources was 69.8%, compared with 69.2%, 50.0% and 53.7% for the combined NLSCY data of the seven UEY communities.

A relatively high percentage of parents in this area look after their children themselves, rather than using a daycare or similar service. More precisely, 10.9% of children are cared for by a person other than their parents, which is considerably lower than the Canadian rate of 43.4%.

For the study area, the total score out of 100 for family and community indicators was 61.8, 5.4 points below the average of 67.2 for the seven 2001-02 study areas. Scores were lower than average for 8 out of 10 UEY indicators, the biggest differences were for parental engagement in their children's learning activities and residential stability. As for family functioning, the score was below the UEY average, but the difference was not statistically significant. The score for positive parenting was the same for all the study areas.

Despite good overall development, children in the Montreal study area would benefit from efforts to improve language and cognitive development, emotional maturity and vocabulary, and address the prevalence of hyperactivity. Efforts might be directed towards improving the neighbourhoods where they live (especially in regards to social support, residential stability, use of resources, safety and social capital), parental engagement in their children's learning activities and measures to help improve mothers' health.

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I. Introduction

A. What this study is about

Understanding the Early Years (UEY) is an initiative that provides information to help strengthen the research capacity of communities to make informed decisions about the best policies and most appropriate programs to serve families with young children. It seeks to provide information about the influence of community factors on young children's development, and to enhance community capacity to use these data to monitor early childhood development and to create effective community-based supports.

There is increasing evidence to support the importance of investing in the early years of children's development. New research shows that these formative years are critical, and that the kind of nurturing and stimulation that children receive in their early years can have a major impact on the rest of their lives.

Evidence also suggests that neighbourhoods and communities where children grow and learn directly influence their development. They affect parents' ability to provide the best possible family environment, and the ability of schools to offer the best possible education.

Neighbourhoods, communities, provinces and regions across Canada differ in important ways. Therefore, gathering community-specific information about children and the places where they are raised can help the policy sector[2] deliver programs that are sensitive and responsive to local conditions. *Understanding the Early Years* can contribute to this process.

This report is one of twelve community research reports. Studies in one pilot community and five study communities were conducted in 2000-2001, and another seven study communities were conducted in 2001-2002. Each report describes children's outcomes and explains them in terms of three factors: family background, family processes, and community factors. Children's outcomes were assessed in three major categories: physical health and well-being, cognitive skills, and behavioural measures. This report is based on one of the seven community studies carried out in 2001-2002, specifically the one covering 10% of Montreal.

Data describing the outcomes of children ages 5 and 6, as well as the family and community environments in which they live, were collected from three sources: their parents, their teachers, and from the children themselves. The data for all twelve community research reports were based on the Early Development Instrument (EDI) and the National Longitudinal Survey of Children and Youth (NLSCY) assessments. Samples were drawn in each of the communities from families with children ages 5 and 6, and the teachers, parents, and children were given the EDI and NLSCY assessments.

In order to understand the performance of the children in each community based on the EDI, the results were compared to a larger EDI sample of about 28,250 children, drawn from selected communities. Although this sample, referred to as EDI-16, is not truly national or representative, it provides a means of comparing children in this community with other 5-6 year old children. The number of children in the EDI-16 sample is different from that used in the EDI monitoring report[3].

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2 Policy sector is broadly conceived to include families, the private and voluntary sectors, and governments at local, provincial and federal levels.

3 The EDI community monitoring report uses only EDI data. The NLSCY data are from a sample of all of the children who completed the EDI. Therefore, the numbers in the EDI report and the research report are not the same.

The results from the NLSCY assessments taken by the community children were compared with the national means, developed from the national survey, which has a nationally representative sample.

This research report presents the outcomes for kindergarten children in the Montreal study area. Although it focuses on the Montreal UEY site and the programs that are available, several children's services are offered outside the designated study area. Several families outside the site may use the services offered inside the study area. Similarly, some families from the study area may participate in programs offered in adjacent neighbourhoods. This mobility should be taken into account when interpreting the geographic distribution of the EDI results.

The first aim of this report is to assess how children fare in cognitive and behavioural outcomes and in physical health and well-being. It considers children's developmental outcomes shortly after they begin kindergarten. Where possible, the report provides provincial- and national-level information with which local conditions can be compared.

The report's second aim is to discern how important certain family and community factors are in affecting children's development, as well as to provide some indication of what actions might further improve children's outcomes in the Montreal UEY site.

The report sets out ten indicators upon which this community can act over the next few years. If the policy sector can devise means to improve the processes associated with these indicators, it is likely that children's outcomes during the formative years will improve, as will their chances of leading healthy and fulfilling lives.

B. How the study was conducted

The information contained in this document was collected and analyzed using a variety of methods.

Two major types of information about the children were collected. The first, which considers aspects of children's development at ages 5 and 6, is comprised of five major domains:

- Physical health and well-being;
- Social competence;
- Emotional health and maturity;
- Language and cognitive development;
- Communication skills and general knowledge.

Information for this set of domains was collected by teachers, using a checklist called the Early Development Instrument (EDI), developed by Dr. Dan Offord and Dr. Magdalena Janus at the Canadian Centre for Studies of Children at Risk, McMaster University. Teachers from 28 schools in the study area were asked to fill out a questionnaire on the behaviour and development of each of the children in their classes. This information was used to determine how ready the community's children, as a whole, were for school.

The second type of developmental information was collected through a survey of parents, guardians, and the children themselves. The instruments used in the National Longitudinal Survey of Children and Youth Community Study were administered to children and their parents. This was done to acquire more detailed information about the experiences of children and families in the Montreal study area, as well as, measures of children's outcomes regarding their cognitive skills, pro-social behaviour and other

behavioural outcomes. In addition, information regarding childcare arrangements (e.g., whether children were cared for by parents, relatives, or non-relatives, either at home or outside the home) was collected.

The random sample comprises 425 Montreal kindergarten children who were chosen as study participants. Statistics Canada interviewers collected detailed information from and about these children using instruments from the NLSCY Community Study. The major instruments measuring children's outcomes included:

- Vocabulary Skills (Peabody Picture Vocabulary Test, Revised);
- Developmental Level (Who Am I?);
- Number Knowledge (Number Knowledge Assessment);
- Behaviour Outcomes.

The interviewers also collected information about several family and community factors that can help explain the patterns of child development in the community.

Children completed assessments that asked them to draw, print symbols (e.g., letters and words), show their understanding of quantity and number sequence, and match pictures to words that they heard. Their families provided information about their social and economic backgrounds; their children's activities and involvement in the community; their health; and their social, emotional, and behavioural development.

Because the NLSCY questionnaire is also used across the country as a national survey, the outcomes for children in this community can be compared with national data.

Inset 1: Socio-economic status
The measure of socio-economic status (SES) for the map in Figure 1.1 was derived from the 1996 Canadian Census, based on data describing enumeration areas (EAs), which represent a geographic unit of about 400 families. The measure of SES is a composite score derived from census measures of family income, level of education, and the occupational status of adults living within each enumeration area. The composite scores were standardized, such that the average score for all EAs in Canada was zero, and the standard deviation was one. With this standardization, only about one in six EAs scored below -1, (low SES shown in dark red), and about one in six scored above +1, (high SES shown in dark green). For a discussion of the SES measure derived from the Canadian Census of 1996, see Willms, J. D. (2002), Socio-economic gradients for childhood vulnerability. In J. D. Willms (Ed.), *Vulnerable Children: Findings from Canada's Longitudinal Survey of Children and Youth*. Edmonton, AB: University of Alberta Press.

C. Why the study is of interest

Understanding the Early Years combines information about children with information about their families and the communities in which they live. This, in turn, provides an understanding of the relationship between children's outcomes and the environments in which they are raised. This information is important for Canada's parents and communities who want to help their children develop well. Second, the study results help it helps the individuals, institutions, and communities who work with children to understand these processes at the levels where action is often most effective: the neighbourhood and community.

This report highlights some of the key findings from the information that was collected from teachers, parents, and their children. It examines the overall development of children in kindergarten (through the Early Development Instrument) and provides a more detailed look at the outcomes of these children (through the NLSCY Community Study). It suggests some of the unique strengths from which Montreal study area can work, and some challenges to overcome in continuing to build a collective commitment to ensure the health, well-being, and positive development of its young children.

D. Socio-economic status in study area

Socio-economic status (SES) is an important variable in social research because it affects a person's chances for education, income, occupation, marriage, health, friends, and even life expectancy.[4] This report describes children's outcomes and how they are affected by family socio-economic status, family processes, and community resources. Thus, it is helpful to have an understanding of the socio-economic backgrounds of the families in this community, as well as of how these are distributed geographically across the study area.

Socio-economic status is usually quantified as a composite measure comprising income, level of education, and occupational status. Accordingly, the measure of SES used here combines the income, level of education, and occupational status of the children's parents. Other family factors, such as family structure (e.g., single- or two-parent family), or whether the mother was a teenager when the child was born, are not dimensions of SES (although they are usually correlated with SES). Additional aspects of family and community structure will be presented in Section III.

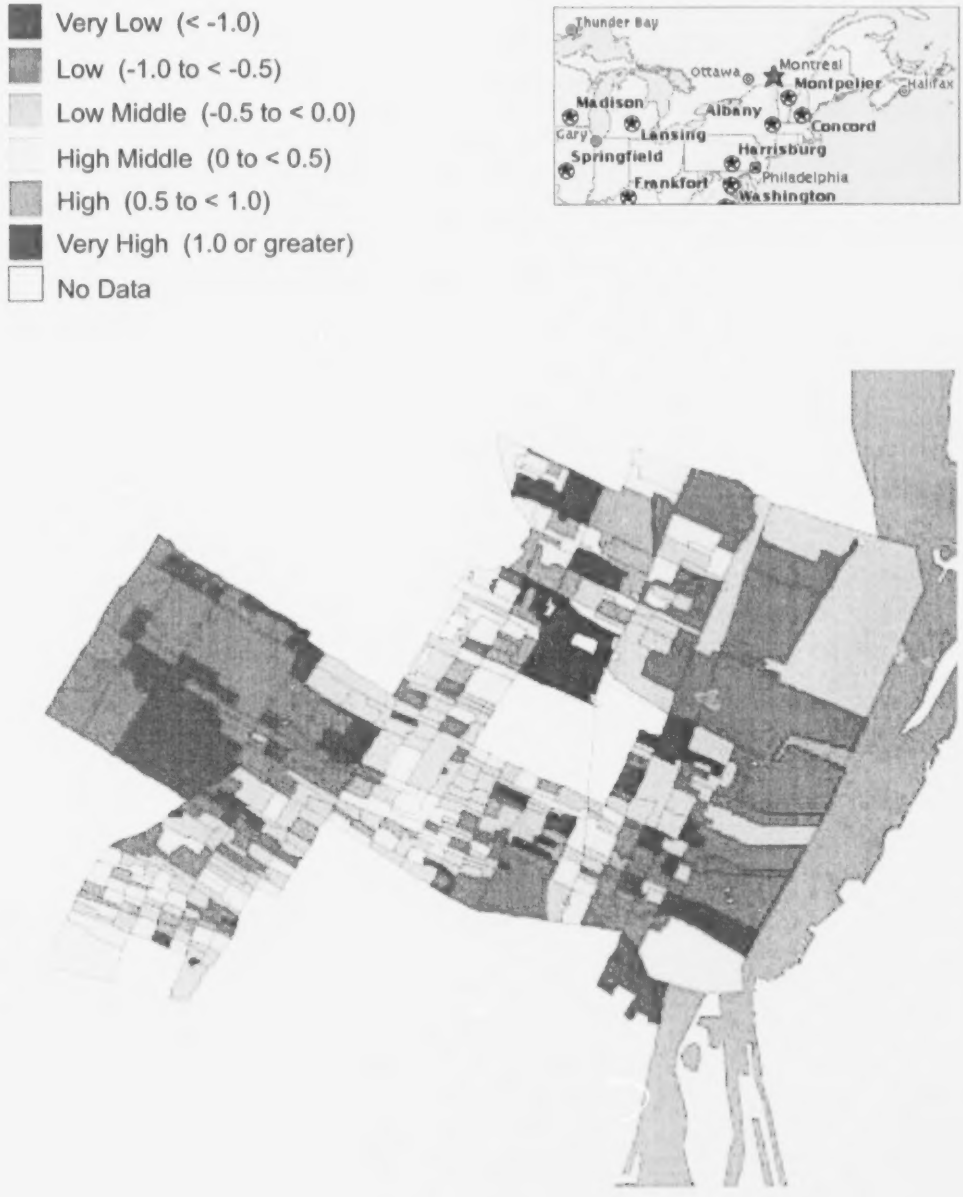
Figure 1.1 shows the geographic distribution by socio-economic status of families in the Montreal study area. The map reveals two concentrations of low-SES families, but the second is less dense than the first. First, the northwest section of the area is characterized by enumeration areas (EAs) with low or very low SES compared with the Canadian average. The second concentration is in the southeast and northeast of the area, especially along the St. Lawrence River. Only one group of EAs in the centre of the northern part of the city has a high SES. The other sections of the area have a SES slightly higher or lower than average, with scatterings of EAs with relatively high or low SES. This study area seems to have more low SES EAs than the other six sites. The last sections of the report will discuss in greater detail the various data included in the SES index, which confirm that the community has a relatively high number of low SES families.

Low socio-economic status EAs are usually contiguous, as are high SES EAs. There are, however, a few enclaves of low SES families in the centre of the northern section in Montreal that are surrounded by high SES EAs. The opposite is also true: there are high SES EAs in the centre of the southern section and in the southwest that are contiguous with low SES EAs.

Despite the relatively low socio-economic status of some of the neighbourhoods studied, the children who participated in the study scored near the national averages for many outcomes measured by the EDI and the NLSCY. Moreover, the analyses in the next sections show that the spatial distribution of outcomes does not match SES patterns (see Figures 2.3 to 2.7). This indicates that there were many children in poor areas who were faring quite well, and children in high SES areas with rather low outcomes.

[4] Miller, Delbert C. 1991. *Handbook of Research Design and Social Measurement*. Sage Publications, Inc. Newbury Park, CA. p. 327.

Figure 1.1 – Socio-economic status of the Montreal study area (see Inset 1)



II. The outcomes for children of the Montreal study area

A. How the outcomes were measured

This section provides more information about the specific measures of children's outcomes. A child's cognitive skills, behaviour, and physical health and well-being outcomes were measured in two ways, using the Early Development Instrument (EDI) and the National Longitudinal Survey of Children and Youth (NLSCY) Community Study.

Five domains of the EDI (teacher report)

1. *Physical health and well-being*: children's motor skills, energy levels, fatigue, and clumsiness.

2. *Social competence*: self-confidence, tolerance, and children's ability to get along with other children, to accept responsibility for their own actions, to work independently.

3. *Emotional health and maturity*: children's general emotional health and maturity. It also identifies minor problems with aggression, restlessness, distractibility, or inattentiveness, as well as excessive, regular sadness.

4. *Language and cognitive development*: mastery of the basics of reading and writing, interest in books, and numerical skills (e.g., recognising numbers and counting).

5. *Communication skills and general knowledge*: children's general knowledge, their ability to articulate clearly, and their ability to understand and communicate in English or French.

Inset 2 - Early Development Instrument
The Early Development Instrument contained more than 70 questions, and asked teachers the following types of questions about each child in the class:

- Would you say that this child follows instructions, accepts responsibility, and works independently?
- How often is the child too tired to do school work?
- Is the child well co-ordinated?
- Would you say that this child is upset when left by a caregiver, has temper tantrums, appears worried, or cries a lot?

Teachers were asked to comment on the child's use of language, his or her interest in books, and his or her abilities related to reading and writing. They were also asked about children's communication skills and general knowledge.

Cognitive skills (from the NLSCY - direct assessments of the child)

Vocabulary Skills (Peabody Picture Vocabulary Test, Revised – PPVT-R): assesses a child's receptive or hearing vocabulary. The children hear a word said aloud and are asked to point to one of four pictures that they believe corresponds to the word.

Development Assessment (Who Am I?): is based on copying and writing tasks, which are designed to test children's ability to conceptualize and to reconstruct a geometrical shape and to use symbolic

representations, as illustrated by their understanding and use of conventional symbols such as numbers, letters, and words. Children are asked to copy five shapes (such as a circle or a diamond) and to write their names, numbers, letters, words, and a sentence. Because the tasks are not dependent on language, Who Am I? can be used to assess children whose knowledge of English or French is limited.

Number Knowledge Assessment: is designed to test the child's understanding of numbers. Children who do not have this understanding, or who are working in a language different from their mother tongue, often have difficulty mastering basic arithmetic and demonstrating number sense. The Number Knowledge Assessment evaluates children's understanding of quantity (more vs. less), their ability to count objects, their understanding of number sequence, and their ability to do simple arithmetic.

Behaviour outcomes (from NLSCY community study - parent report)

Measuring a child's behaviour is based on a scale administered to the person most knowledgeable about the child, which is usually the mother.[5] The measurements comprise several questions, each with the same format. For example, the mother is asked how often her child cannot sit still, is restless, or is hyperactive. She answers with one of three possible responses – "never or not true"; "sometimes or somewhat true"; and "often or very true." The scale included the following elements:

Positive social behaviour: children who exhibit higher levels of positive social behaviour are more likely to try to help and comfort others. They may offer to help pick up objects that another child has dropped or offer to help a child who is having trouble with a difficult task. They might also invite their peers to join in a game.

Indirect aggression: this element identifies children who, when mad at someone, try to get others to dislike that person; who become friends with another for revenge; who say bad things behind the other's back; who say to others, "Let's not be with him/her"; or who tell secrets to a third person.

Hyperactivity: hyperactive children cannot sit still; are restless and are easily distracted; have trouble sticking to any activity; fidget; cannot concentrate, cannot pay attention for long; are impulsive; have difficulty waiting their turn in games or groups; or cannot settle to do anything for more than a few moments.

Emotional disorder/anxiety: this element identifies children who seem to be unhappy, sad, or depressed; are too fearful or anxious; are worried; cry a lot; tend to be rather solitary; appear miserable, unhappy, tearful, or distressed; are not as happy as other children; are nervous, high strung, or tense; or have trouble enjoying themselves.

Physical aggression and conduct disorder: these children get into many fights. When another child accidentally hurts them (by bumping into them, for example), they assume that the other child meant to do it, and then react with anger and fighting. Also included are children who kick, bite, or hit other children; who physically attack people; and who threaten people, are cruel, or bully others.

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5 Statistics Canada trained personnel conducted the parent interviews by telephone only in English or French for the NLSCY. Parents without telephones or speaking other languages were not interviewed.

B. What we learned from teachers: results of the Early Development Instrument (EDI)

The children in the Montreal UEY site vary in their outcome profiles in the five EDI domains, compared with children in the EDI-16 sample (see Table 2.1).[6] In three domains, the scores were well above the Canadian average, while for the other two, they were considerably lower.

The biggest differences between the Montreal group and the Canadian sample were in communication skills and general knowledge (0.9 point above the EDI-16 average), social competence (0.5 point above the EDI-16 average), and physical health and well-being (0.4 point above the EDI-16 average). The average score for emotional health and maturity was 0.4 point lower than the EDI-16 average. This was the lowest score. The average score for language and cognitive development was also lower than the EDI-16 average (0.3 point). All these differences are statistically significant.

Figure 2.1 shows that the medians for EDI scores in the Montreal study area are significantly different from the EDI-16 sample. The differences between the medians for the five domains follow the same pattern as the scores in Table 2.1: the children in the Montreal communities scored higher than those in the EDI-16 sample in physical health, social competence, and communication skills and general knowledge, and scored lower in emotional maturity and language and cognitive development.

The range of scores is indicated by the length of the boxes.[7] The interquartile range of the scores for children in the Montreal area were quite different from those of the EDI-16 sample, except for language and cognitive development, and communication skills and general knowledge. There were more children in the study area than in the EDI-16 sample who scored low on emotional maturity. As for social competence, more children scored very high as compared with the EDI-16 sample. With respect to physical health and well-being, there were more children who scored very high and fewer children who scored very low compared with the Canadian sample.

These scores are consistent with those in Table 2.1. The higher average for children in the Montreal study in social competency can be attributed in part to the large number of children who scored very high in this domain. Similarly, the lower average scores for these children in emotional maturity can be explained by a higher percentage of children with low scores in this domain.

6 The EDI sample size, N = 209, included valid data only. To be included in the EDI sample size for the Montreal study area, children needed scores on at least 3 out of the 5 EDI domains. This requirement explains why the EDI sample size (N = 209) is different from the NLSCY sample size (N = 400) for the Montreal study area.

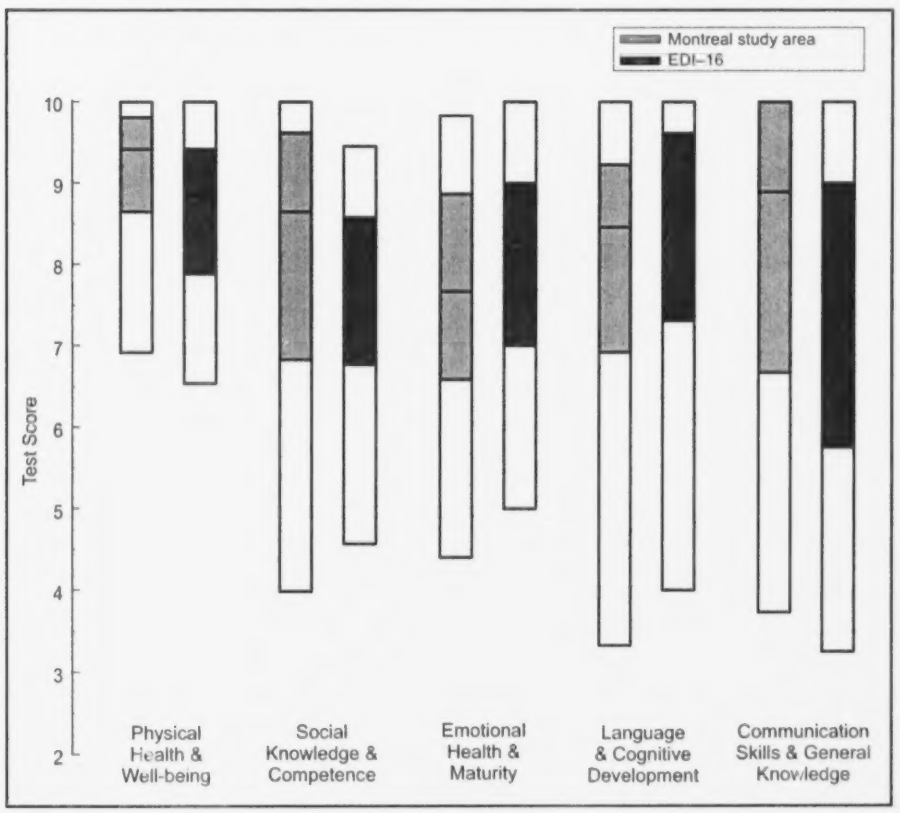
7 The longer the boxes, the greater range of variability in the EDI domain scores. For example, the physical health and well-being domain has short boxes which indicate that scores were very similar to one another. In contrast, the language and cognitive development domain has long boxes which indicated that scores varied considerably, ranging from very low to very high scores.

Table 2.1 – **Mean scores on the Early Development Instrument for the Montreal study area UEY community and the comparison sample**

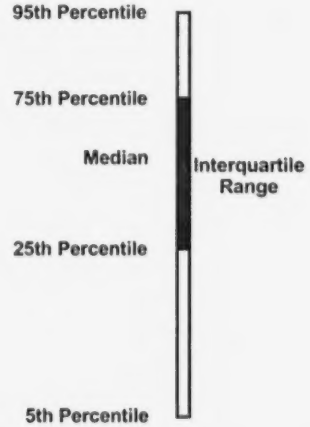
	Montreal study area (N = 209)		EDI-16 Sample (N=28,250)	
	Mean	SD	Mean	SD
Physical Health and Well-being	**9.0**	1.0	8.6	1.1
Social Knowledge and Competence	**8.0**	1.9	7.5	1.5
Emotional Health and Maturity	**7.5**	1.7	7.9	1.5
Language and Cognitive Development	**7.8**	2.0	8.1	1.9
Communication Skills and General Knowledge	**8.1**	2.2	7.2	2.1

Note: Figures in blue text differ significantly (p<0 .05) from the EDI-16 sample mean.

Figure 2.1 – **Box plots comparing the distribution of EDI scores for the Montreal UEY site**

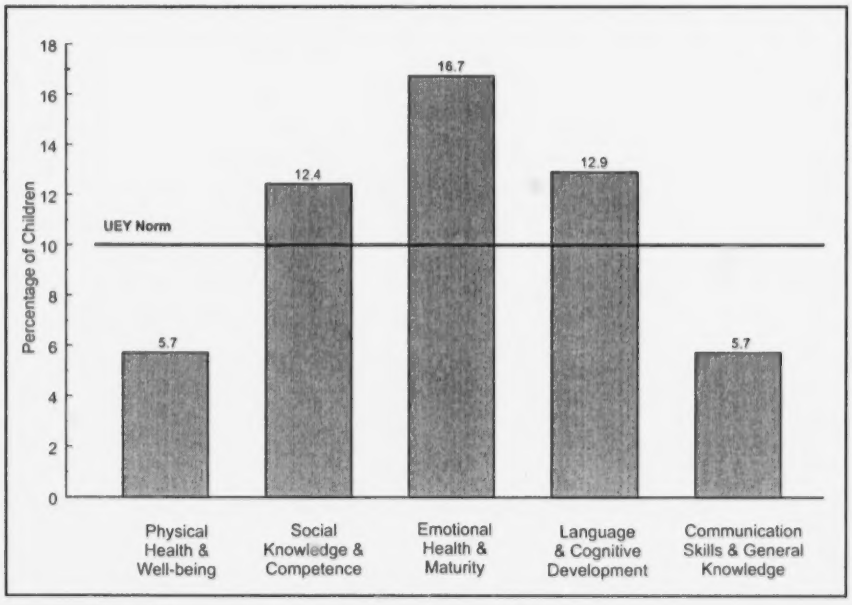


Inset 3 – The percentile plots display the distribution of the EDI scores for each group as follows:



Inset 3 – The median is the mid-point at which 50% of the cases fall above and 50% of the cases fall below. Percentiles refer to the percentages of cases with values falling above and below the number. Ideally, a community would want to have a high median score, with relatively short blocks and below the median.

Figure 2.2 – Percentage of children with low scores on the Early Development Instrument in the Montreal study area



Note: Significant differences (p<.05) are indicated with red text.

The EDI-16 was also used to establish a "low score" threshold for each EDI domain. The low-score threshold scores were set to the tenth percentile, which means that 10% of all children scored below this score for each domain. Thus, if a community had typical results, we would expect 10% of its children to score below the same threshold scores for each domain.

In the study area, the percentage of children with very low EDI scores varies according to domain. The percentage of children who scored low on physical health and communication skills is less than half the national norm of 10%, which is consistent with the scores shown in Table 2.1 and Figure 2.1. But 16.7% of the children scored low for their emotional maturity, which is more than one and a half times the national norm. These scores are consistent with those shown in Table 2.1 and Figure 2.1. However, the percentage of children with very low scores in social competency is surprising (although the difference in relation to the national norm is not statistically significant), given the high average score in Montreal in this domain. In Figure 2.1, the bottom part of the "Montreal" box for this domain is lower than that of the Canadian sample. This means that some children in the study area scored very low, but the average for the area in this domain remained high because of the large number of children with high scores.

The data collected as part of the *Understanding the Early Years* study included information about where each child resided. Therefore, an analysis was conducted that would give some indication of how children's scores on the EDI were distributed geographically. To achieve this, we determined the average score within each enumeration area and for each domain of the EDI. We then "smoothed" the average scores for each enumeration area.

Figures 2.3 through 2.7 display the geographic distribution of the EDI scores for each of the domains. For each map, the yellow and orange areas represent scores that are just below (orange) or just above (yellow) the median score of the full EDI-16 sample. Scores that are somewhat below the EDI-16 median are indicated in light red, and very low scores (which are comparable to the bottom 17% of the population) are shown in dark red. Similarly, relatively high scores are represented in light green, while very high scores (which are comparable to the top 17% of the population) are shown in dark green. Although geographic distribution varies with domain, most high scoring EAs (greens) are located in the centre and northeast of the study area, or in the southwest. The southern and northwestern sections of the area had scores that were lower than the medians (red).

Inset 4 - Smoothing data
This is a statistical technique that involves estimating the mean score for a particular EA together with the scores for all of the EAs that are geographically contiguous (that is, those that immediately surround it). Smoothing the EDI data in this way removes some of the random fluctuation due to measurement and sampling error, thereby displaying estimates of the results we would expect if all kindergarten children in the community had participated in the EDI. Smoothing also ensures that the confidentiality of individuals, or small groups of individuals, is not compromised. For a discussion of these techniques, see Fotheringham, A. S., Charlton, M., & Brunsdon, C. (1997). Measuring spatial variations in relationships with geographically weighted regression. In M. M. Fischer & A. Getis (Eds.), *Recent Developments in Spatial Analysis*. Heidelberg: Springer-Verlag.

Figure 2.3 –The geographic distribution of EDI scores for physical health and well-being

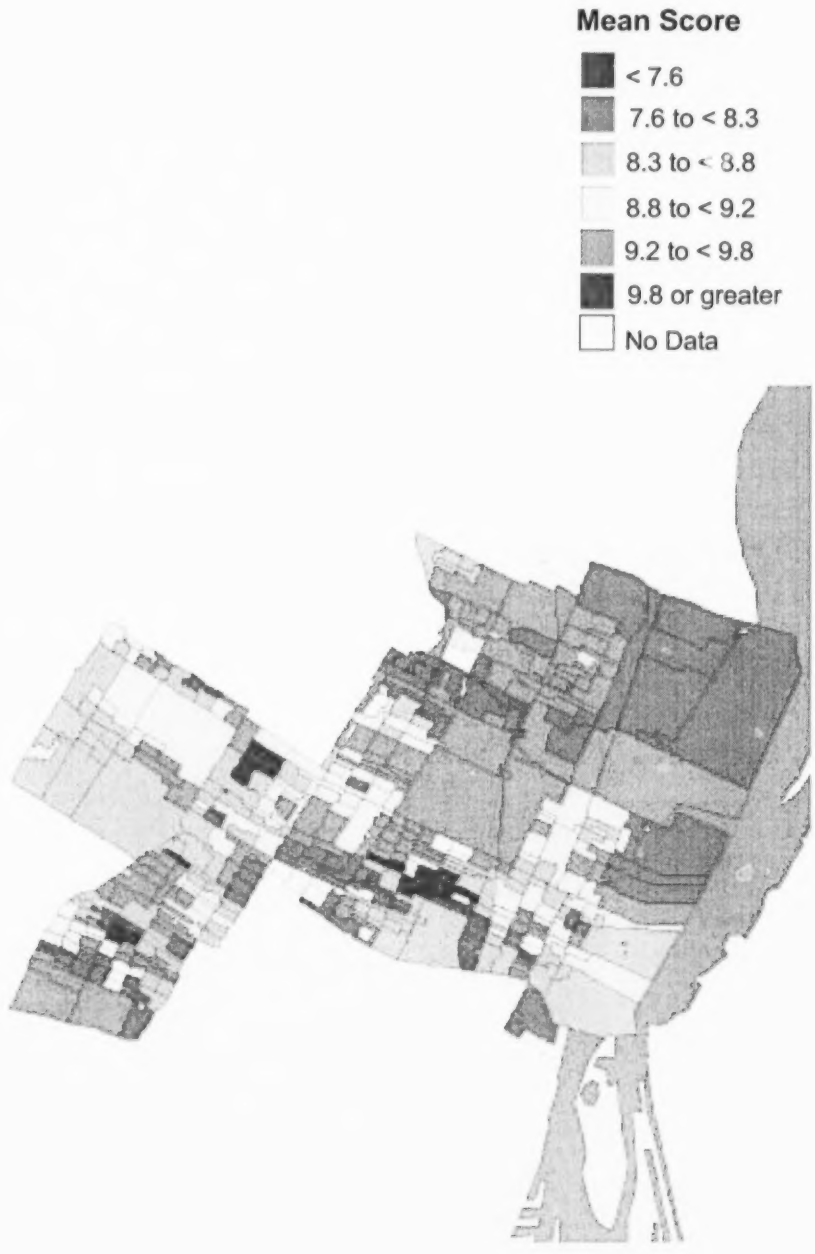


Figure 2.4 – The geographic distribution of EDI scores for social competence

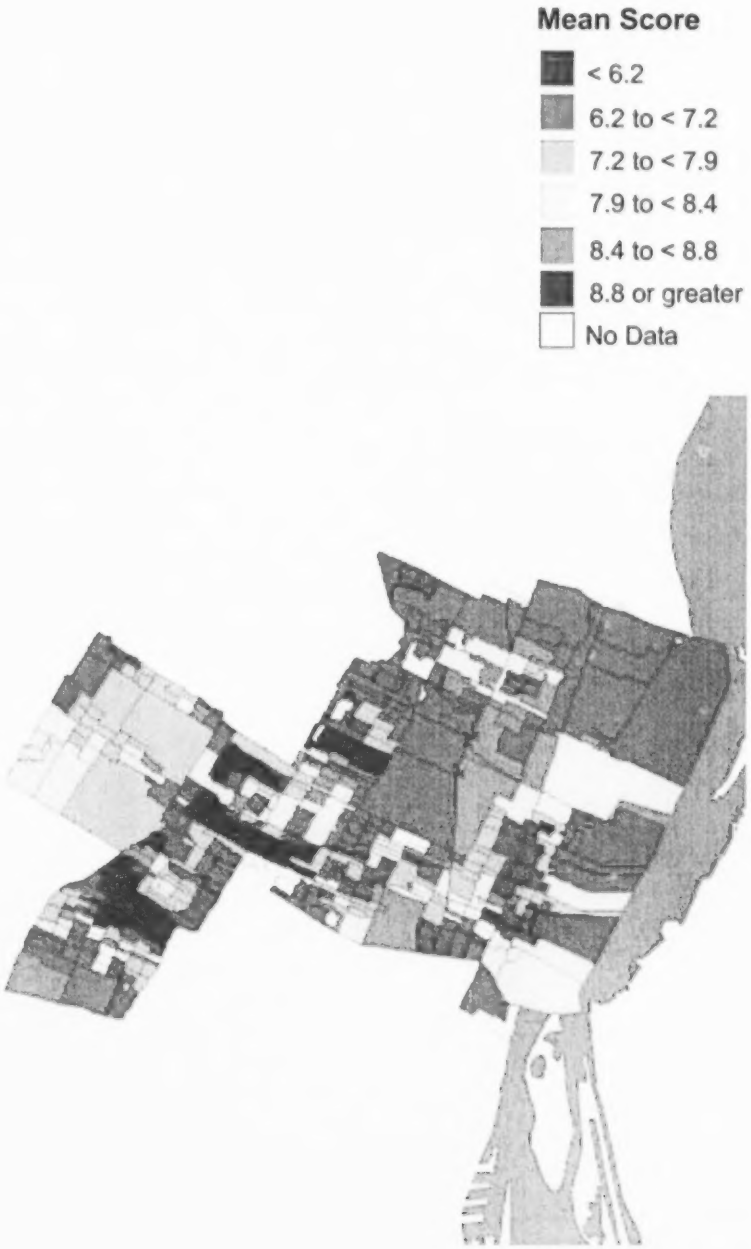


Figure 2.5 –The geographic distribution of EDI scores for emotional health and maturity

Figure 2.6 –The geographic distribution of EDI scores for language and cognitive development

Figure 2.7 –The geographic distribution of EDI scores for communication skills and general knowledge

The map in Figure 2.3 shows that several EAs scored higher than the EDI-16 median (8.8) in physical health and well-being, including a certain number of EA's with low socio-economic status. The regions with the highest scores were mainly in the northeast and centre of the study area, as well as in the southwest section. Most of the other EAs had scores close to the median, and only a few EAs had low or very low scores.

Figure 2.4 shows that scores in social competence were often higher than the EDI-16 median (7.9). As was the case for physical health, the EAs with the highest scores were mainly in the centre of the area and in the northeast and southwest. Many other EAs scored low or very low on social competence. Most are middle class areas. These scores are consistent with those in Figure 2.1, which shows a wide dispersion of scores in this domain.

Figure 2.5 shows that several EAs scored lower than the EDI-16 median (8.2) for emotional maturity. Some of these have high or medium socio-economic status. Most of the other EAs have medians close to the EDI-16 median. There is, however, a small concentration of EAs with high scores and varied SES levels.

Figure 2.6 shows that most Montreal area EAs scored near the EDI-16 median (8.8) in the language and cognitive development domain. There are, however, a considerable number of EAs with low or very low scores in this domain. Some of them have a high SES. Very few EAs have high scores in this domain. They are scattered throughout the area and have various SES levels.

Figure 2.7 shows that the neighbourhoods in the four corners of the area and the centre scored high on communication skills and general knowledge. There are two enclaves of EAs with scores almost the same as the EDI-16 median (7.5), in the northwest and centre-east of the area. Only a few EAs showed very low scores, and they are scattered throughout most of the area's neighbourhoods, some with high SES and some with low SES.

Overall, the maps show no regular EA pattern that would make it possible to establish a link between socio-economic status and the five EDI domains. The EAs in the high SES part of the section located in the centre of the northern part of the area sometimes showed scores close to or higher than the means for some EDI domains, but this is not a general rule. The enclave of low SES EAs in the northwest of the area often showed scores close to the EDI-16 mean. There are also a few small EAs or groups of EAs in the study area that had high scores in all the domains but that do not necessarily have a high SES. Despite the considerable number of low-income families in the study area, the children scored high in some domains. The maps of the Montreal study area show that socio-economic background is not a definitive predictor of EDI outcomes. Therefore, the other factors that could influence children's development must be taken into account. These outcomes can be more fully explained when additional family and community factors are taken into consideration.

C. What we learned from parents, guardians, and the children: NLSCY community study results

In this section, we discuss the results of the National Longitudinal Survey of Children and Youth Community Study, which measures children's cognitive skills, positive social behaviour, and behaviour problems.

Table 2.2 displays the means and standard deviations of scores on the Developmental Assessment (Who Am I?), on the Positive Behaviour Scale, and on the Receptive Language (PPVT-R) Test. Figure 2.8 displays their distributions.

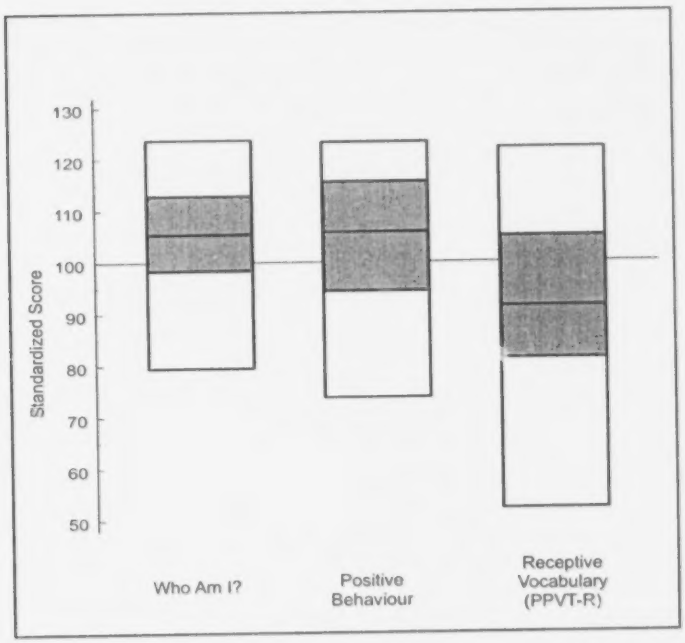
Inset 5 - For the Receptive Language Test, national norms were available, and the scores are scaled such that the national mean is 100, and the standard deviation (a measure of the spread of scores) is 15. National norms were not available for the Developmental Assessment (Who Am I?), or the Positive Behaviour Scale, but to maintain some degree of comparability, they were scaled to have a mean of 100 and a standard deviation of 15 for the entire sample of children who participated in the seven communities of the 2001-02 UEY project (see Table 2.2).

Table 2.2 – **Mean scores on the NLSCY standardized instruments for the Montreal UEY community**

	Mean	Standard Deviation
Developmental Assessment (Who Am I?) (N = 77)	104.9	13.2
Positive Behaviour Scale (N = 389)	103.3	15.6
Receptive Language (PPVT-R) (N = 320)	91.1	19.9

Note: Figures in blue are significantly different from the standardized mean of 100.

Figure 2.8 – Box plots comparing the distribution of scores on the Who Am I? Positive Behaviour Scale, and the PPVT-R

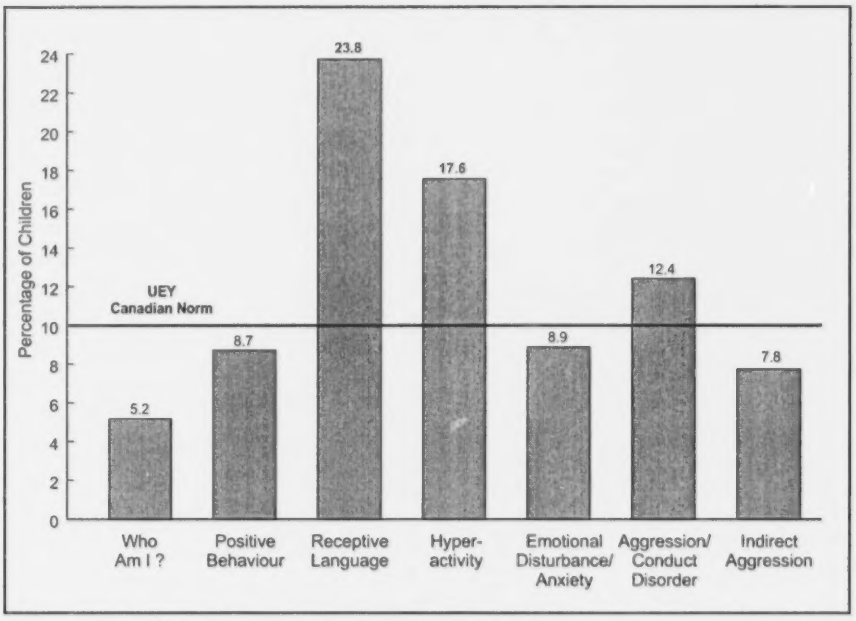


The average scores of the Montreal sample on the Developmental Assessment (Who Am I?) and Positive Behaviour Scale are 104.9 and 103.3. They are significantly higher than the 2001-02 UEY average of 100. On the vocabulary test, however, the same sample's average score is 91.1, which is significantly lower than 100. On the first two measures, the standard deviation is close to 15.0, indicating that the spread of scores is also similar to those in the 2001-02 UEY sample or the NLSCY sample. However, the standard deviation on the Receptive Language Test is 19.9, indicating a much wider spread of scores for the Montreal sample than for the seven study areas. The last box in Figure 2.8 confirms this: a high percentage of Montreal children who took the test scored very low.

Figure 2.9 shows the prevalence of children with low scores on the Developmental Assessment (Who Am I?), the Positive Behaviour Scale, and the Receptive Language Test. It also shows the percentage of children deemed to have a behaviour problem, based on four measures of behaviour (hyperactivity, emotional disturbance/ anxiety, aggression/conduct disorder, and indirect aggression).

For each measure, a score at the 10th percentile of the 2001-02 UEY sample (for the Developmental Assessment and the Positive Behaviour Scale) or the nationally representative NLSCY sample (for the PPVT-R) was used as the threshold to define a "low score". Similarly, children with scores above the 90th percentile for the NLSCY sample on the behavioural measures were considered to have a behaviour problem. For each measure the prevalence of children in the Montreal study area with low scores on the three developmental assessments, and the prevalence of behaviour problems, was calculated. This allows one to compare whether the prevalence of children in the Montreal study area with significant problems in these areas is above or below the national norm of 10%.

Figure 2.9 – **Percentage of children with low scores on the cognitive and behavioural measures (Montreal study area)**



Note: Significant differences ($p<.05$) are indicated with red text.

The results indicate the prevalence of hyperactive children in the Montreal sample (17.6%) was significantly above the national threshold fixed at 10%. The prevalence of children with low scores on the vocabulary test (23.8%) was also above 10%, almost one and a half times the national threshold. The prevalence of children with low scores on the Who Am I? assessment, however, was only half the national norm. The prevalence of low-scoring children on the Positive Behaviour Scale was slightly less than 10%, as was the prevalence of children showing signs of emotional disorders or indirect aggression. The prevalence of children with behaviour problems was slightly higher than the national threshold, but the difference is not statistically significant. Overall, the analysis suggests that there was a high prevalence of hyperactive children in the Montreal sample and a large number of children scored lower in receptive vocabulary in relation to national norms. As mentioned above, it is important to point out that there are a high number of children whose parents speak neither French nor English. On the other measures, the scores in the Montreal community were close to the national norms.

The study also included a direct measure of a child's understanding of the system of whole numbers. Scores were classified according to developmental levels:

- Have not reached level 1;
- Reached level 1 (usually attained by 4-year-olds);
- Reached level 2 (usually attained by 6-year-olds);
- Reached level 3 (usually attained by 8-year-olds).

For all of the children who did the assessment across the seven study areas, only 1.1% had failed to reach level 1. The majority of children (42.8%) were at level 1, or had

made the transition to level 2 (54.2%). Only 1.9% of the UEY children had reached level 3. These results are as expected given that the UEY children were 5 and 6 years old.

In the Montreal study area, 97.5% of the children sampled had either reached level 1 or had made the transition to level 2. This is almost identical to the 2001-02 UEY prevalence of 97.0%. Only 0.9% of the children in the area failed to reach level 1.

Overall, the analyses in this section indicate that the Montreal study area has some strengths and weaknesses in early childhood outcomes. Its strengths lie in the area of its children's social competence, communication skills and general knowledge, physical health and well-being, and positive behaviour. Teachers rated children above national norms on these various measures. Improvements should be made in children's language and cognitive development, emotional maturity, hyperactivity and receptive vocabulary.

More specifically, teachers in the study area rated children below national norms in the language and cognitive development domain, which measures mastery of the basics of reading and writing, interest in books and numerical skills. Most of the children with low scores in language and cognitive development live in the western and southern sections of the area, where most of the immigrant families live. Teachers also rated children below the norm in emotional maturity, which includes minor problems with aggression, restlessness, inattentiveness, as well as excessive, regular sadness. The children who scored low in these domains live mainly in the western and northeast sections of the study area.

Several children scored below the national norm on the Receptive Language Test. This assessment is carried out directly with the children using standardized methods, which makes it possible to compare results with those of children living in other parts of the country. The assessments done by parents of their children's behaviour indicate a prevalence of hyperactivity one and a half times higher than the national threshold. It should be noted that this result is based on parent's responses, rather than a professional diagnosis. Some of these results are likely attributable to family background and family and community factors. This is explained in the next two sections.

III. How family background affects children's preparedness for a good start in life

In this section, information about the relationship between family background and children's outcomes is presented, with special reference made to the family background of the children in the Montreal study area. The relationship between family background and children's outcomes is not straightforward. An important goal of *Understanding the Early Years* is to distinguish the effects of family background, and those associated with family processes and community factors on children's outcomes. All three sets of contributing factors were measured. First, information on seven characteristics of family background is presented. In an earlier study of children's development, based on the national sample of children who participated in the first cycle of the NLSCY, these family background characteristics were significantly related to a range of children's developmental outcomes.

The values, calculated for the seven family background characteristics, are:

- Family income (in $10,000 units): considered to be low if less than $25,000;
- Mother's level of education: considered to be low if the mother did not complete high school;
- Father's level of education: considered to be low if the father did not complete high school;
- Mother's employment status: considered not working outside the home if the mother worked fewer than 25 weeks during the past year;
- Father's employment status: considered not working outside the home if the father worked fewer than 25 weeks during the past year;
- Single-parent family: only one parent or guardian living at home;
- Number of brothers and sisters: the number of siblings living at home.

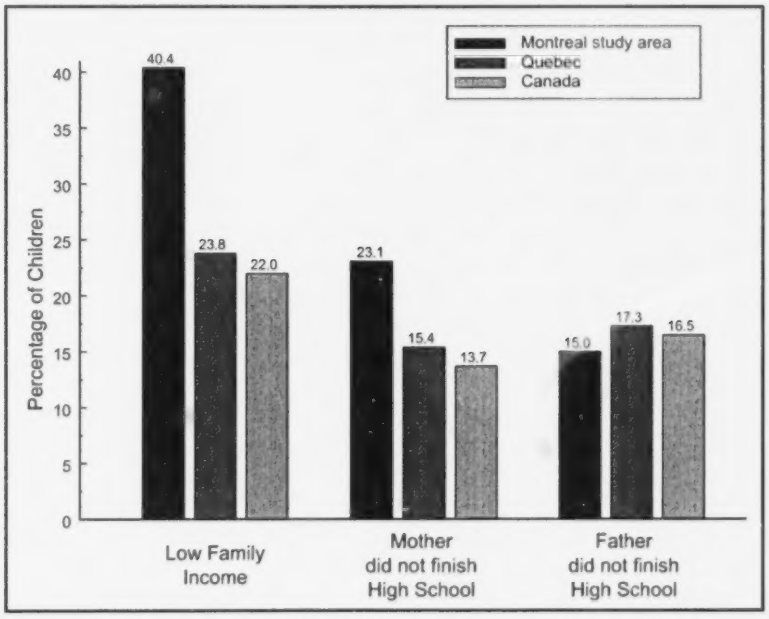
Figures 3.1 and 3.2 show the relative levels of income, education, employment and single-parenthood for families in the study area, as well as provincial and national levels for 1996-97. About 40.4% of families in the Montreal area were considered low income, compared with 23.8% in Quebec and 22% in Canada.

Only 76.9% of mothers in the Montreal study area had completed high school, compared with provincial (84.6%) and national (86.3%) averages. The number of mothers in the area who had not finished high school was almost twice as high as the national percentage. For fathers, the completion rate of 85% is above the provincial and national rates (82.7% and 83.5%, respectively).

Unemployment (or non-participation in the labour force) for parents in the Montreal study area is higher than provincial and national averages. About 54% of mothers were working outside the home, compared with 60% provincially and 64% nationally. Likewise, only 82% of fathers were working outside the home, compared with 89% provincially and 91% nationally. Indeed, the prevalence of fathers not working outside the home is almost twice the provincial and national averages.

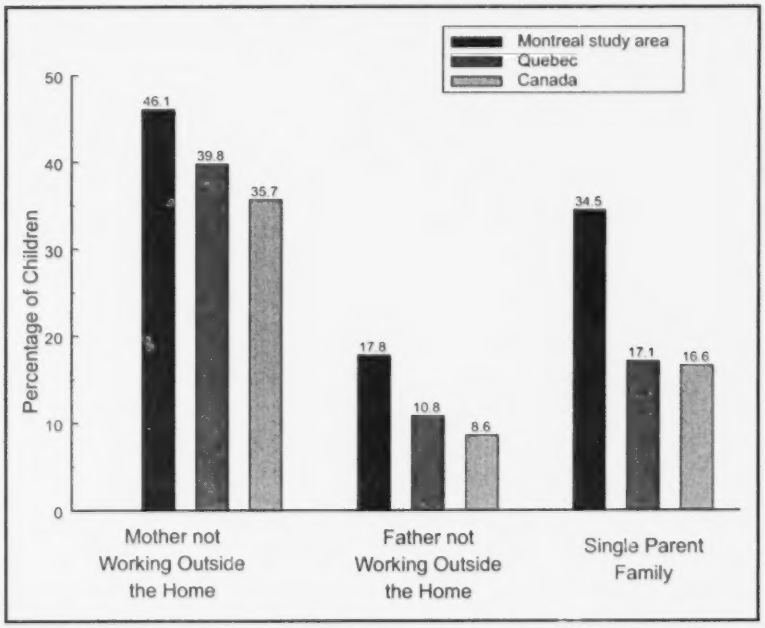
One of the most striking demographic characteristics of families in the study area is the high percentage of single-parent families. About 65% of children in the Montreal area were in two-parent families, while provincial and national figures are above 80%. The prevalence of single-parent families in the study area is more than twice the national rate.

Figure 3.1 – **Family income and parents' education**



Source: NLSCY Community Study for the Montreal study area and national NLSCY (cycle 3, 1996-97).

Figure 3.2 – **Parents' employment and marital status**



Source: NLSCY Community Study for the Montreal study area and national NLSCY (cycle 3, 1996-97).

The map describing the socio-economic status of families (Figure 2.1) indicates that the most prosperous families live in the centre-north section of the study area, and the most disadvantaged families live in the northwest or east. The maps showing the EDI outcomes (Figures 2.3 to 2.7) do not reflect the expected pattern of low scores in low income neighbourhoods. Socio-economic and demographic factors alone do not explain why some children are better prepared in their cognitive and behavioural skills when they enter school.

A. The effects of family background factors on children's development

The analysis focused on the factors contributing to whether or not a child had significantly low scores in one of the three developmental domains, these being the cognitive domain, the behavioural domain, and physical health and well-being. Children with very low scores are *at risk* of not achieving their full potential during the schooling years.

A child was considered to be at risk in the cognitive domain if he or she had a low score (i.e., below the 10% threshold) on the Receptive Language Test, the Developmental Assessment (Who Am I ?), or on the two cognitive domains of the Early Development Instrument.

Similarly, a child was considered at risk in the behavioural domain if he or she had a low score on the Positive Behaviour scale or on either of the two domains of the EDI pertaining to behaviour, or had any one of the four behaviour problems (indirect aggression, hyperactivity, emotional disorder/anxiety, and physical aggression/conduct disorder).

A child was considered at risk in the physical health domain if he or she scored below the low-score threshold on the Physical Health and Well-being domain of the EDI.

The analysis below focuses on positive outcomes, that is, it asks whether children will have a "good start in life". Children who are not vulnerable in any of the three domains are likely to have a better chance of achieving their full potential during the schooling years. Therefore, for each of the family background factors, the odds-ratio associated with whether a child was *not* at risk in these three domains was estimated (see Table 3.1) using the sample of children from all seven of the 2001-02 UEY communities. Thus, the results indicated in Table 3.1 apply to all 2001-02 communities, and are not specific to the Montreal UEY site.

Table 3.1 – **Relationship between children's outcomes and family background**

	Children's Outcomes		
	Cognitive	Behavioural	Physical Health & Well-being
Family Income ($10,000 units)	**1.07**	1.04	**1.12**
Mother's Education (years)	**1.11**	1.02	1.08
Father's Education (years)	**1.08**	1.03	**1.12**
Mother Not Working Outside the Home	**0.71**	0.93	0.78
Father Not Working Outside the Home	**0.58**	0.92	0.83
Single-Parent Family	**0.73**	**0.71**	0.65
Number of Brothers and Sisters	0.92	0.93	0.92

Source: Figures in blue text are statistically significant at p<.10. Results are based on the relationship of NLSCY family background variables with three outcomes for the 7 UEY 2001-02 communities.

Inset 6 - Odds-ratios

Odds-ratios denote the ratio of the odds of an event occurring after a one-unit change in the independent variable, compared with what it had been previously, if all other independent variables in the model are held constant.

For example, suppose the outcome variable of interest was whether a child repeated Grade 1. If the odds ratio for mother's education were .95, it would indicate that the odds of a child repeating a grade decreases as his or her mother's level of education increases. Specifically, with an increase of one year of the mother's education (e.g., 11 to 12, or 12 to 13, etc.), the odds of a child repeating a grade decreases by 5%. When an odds-ratio is greater than 1.0, it indicates that the odds of experiencing the outcome (e.g., repeating Grade 1) are greater with increasing levels of the factor being considered.

The results indicate that family income and the educational level of the mother are important protective factors for cognitive development. For example, the odds of being not at risk in the cognitive domain for a child living in a family with an income of $40,000 is about 7% greater than a child who had similar background characteristics but had a family income of $30,000. Similarly, each additional year of education of a child's mother or father increases the odds of not being at risk in the cognitive domain by about 8% to 11%.

In contrast, children whose parents were not working outside the home were more likely to be at risk in the cognitive domain, as were children living in single-parent families. The effects of these factors were considerable: each was associated with an increase in the odds of being at risk by about 29% to 42%.

The effects of family background for the behavioural domain were consistent with the effects for cognitive development, but they were generally weaker and not statistically significant. The exception was living in a single-parent family. Children from single-parent families were on average about 29% more likely to be at risk.

These effects of family income and father's education were similar for children's physical health and well-being: a $10,000 increase in family income was associated with a 12% decrease in the odds of being at risk, and each additional year of father's education was associated with a 12% decrease in the odds of being at risk. The other family background effects were not statistically significant.

Given the high percentage of mothers in the Montreal area who have not finished high school, as well as the fathers and mothers who do not work outside the home, and the high number of single-parent families, the relatively low scores on certain cognitive measures (receptive vocabulary, for example) of the children in the study is not surprising. About 18% of the children in the study area were children in immigrant families, and may not be fluent in either English or French yet.

The results also show that there are more children with behavioural problems in single-parent families. The high number of single-parent families may be a partial explanation for the relatively high number of children displaying hyperactivity and emotional maturity problems. However, the relatively high scores of the children sampled for positive behaviour and certain other behavioural measures are unexpected in light of the high number of single-parent families. The high scores for physical health and well-being are harder to explain, given the relatively high prevalence of low-income families and mothers with no high school diploma-two factors that generally determine physical health and well-being. However, it is likely that other aspects of family and community life have also influenced children's outcomes. We examine these factors in the next section.

IV. What families and communities in the Montreal UEY site can do to improve children's outcomes

Many studies of childhood outcomes have been based on investment theory, an economic theory that supposes that children receive an endowment from their parents. This includes biological attributes and a cultural endowment determined by their parents' norms, values, and preferences; their income and wealth; and their access to resources. Parents invest time and money in their children, primarily through expenditures on education and health care.[8]

Other theories suggest that childhood outcomes result from family and parenting practices. Children are less likely to have behaviour problems or poor cognitive development if their parents are supportive, responsive, and affectionate. Also, parents who are depressed or severely stressed are more likely to be tense and irritable with their children, and become less engaged in activities that contribute to their emotional and intellectual development. Marital relations become strained, and the overall ability of the family to function as a cohesive unit becomes compromised. These pressures also affect children's development.

Recent research on vulnerable children, based on data from the first cycle of the National Longitudinal Survey of Children and Youth,[9] considered the influence of both family processes and community factors on childhood outcomes. It found that the most important family processes included the parents' "style" of parenting, maternal depression, the cohesiveness or adaptability of the family, and the extent to which children are regularly engaged with learning activities. Child care also plays a critical role. Many children have better outcomes if they have quality daycare, especially those from families of low socio-economic status.[10]

Parents' ability to provide a supportive environment can be either helped or hindered by the neighbourhood and wider community.[11] The quality and safety of the neighbourhood is important, but social factors also play a role. Therefore, we are also interested in the degree of social support available to parents, and the extent to which parents have access to information and support through a strong network of friends and colleagues – factors embodied in the term "social capital." Social support and high levels of social capital are easier to build in a community when the population is not transient; thus, we also expect that child development may be affected by the extent to which the population is stable.

Finally, children's development is more likely to flourish if families have access to educational, cultural and recreational resources. These are important not only because they contribute directly to children's development, but also because they foster social support and increase social capital within the community.

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8 Becker, G. S. (1981). *A treatise on the family.* Cambridge, MA: Harvard University Press.

9 Willms, J. D. (2002). *Vulnerable Children: Findings from Canada's Longitudinal Survey of Children and Youth.* Edmonton, AB: University of Alberta Press.

10 Kohen, D.; Hertzman, C.; & Willms, J. D. (2002). The importance of quality child care. In J. D. Willms (Ed.). *Vulnerable Children: Findings from Canada's Longitudinal Survey of Children and Youth.* Edmonton, AB: University of Alberta Press.

11 Brooks-Gunn, J., Duncan, G. J., Aber, J. L. (Editors) (1997). *Neighbourhood Poverty: Context and Consequences for Children.* New York: Russell Sage Foundation.

We saw in section II of this report that children in the Montreal area scored high on some aspects of development and low on others. Their average scores were higher than the EDI-16 sample for three of the five EDI measures. Their scores approached or exceeded national standards of performance on some NLSCY outcome measures. However, the number of measures on which they scored lower counterbalances these positive results.

In comparison with provincial and national conditions, children in the Montreal study area live in relatively poor socio-economic conditions. There is a relatively high prevalence of low-income families, mothers who have not completed high school, father and mothers who do not work outside of the home, and single-parent families. Given the significant impact of these factors on children's outcomes, it is not surprising that they scored relatively low on certain cognitive development and behavioural measures. However, the children did well on some other development measures, such as the Who Am I? test and Positive Behaviour Scale. Several children in disadvantaged EAs did better than expected despite their socio-economic reality. Factors other than those associated with their immediate socio-economic status may also be at play.

The strategy used in the next analysis was to combine a large number of family and community variables into ten indicators that are essential for successful child development. These indicators had to meet two criteria:

- There had to be evidence that the indicators were related to children's developmental outcomes, either from previous literature or through analyses of the UEY and NLSCY data.
- They had to be amenable to change through the efforts and actions of families and communities, through the support of community and volunteer agencies, and through social policy at the local, provincial and national levels.

In this section, the ten indicators are described; the results of the analyses with the UEY data are presented, which give some indication of the relative importance of these factors; and the scores on these indicators for the Montreal study area community are shown.

A. Ten indicators of family and community success

Each of the indicators is presented from 0 to 10, with 10 being the highest positive score.[12]

1) Positive parenting

This indicator was based on research that has shown that children have better developmental outcomes when their parents monitor their behaviour, are responsive to their needs, and encourage independence with a democratic approach.

This "style" of parenting, called "authoritative" parenting, stands in contrast to "authoritarian" parenting, characterized by parents being highly controlling and somewhat harsh in their approach to discipline, and "permissive" parenting, characterized by parents being overly-indulgent and setting few limits for behaviour.[13]

The scale includes items assessing the extent of positive interactions — how often the parents praise the child, how often they talk and play with them, and how often they laugh together. It includes items pertaining to whether parents are consistent and rational in their approach.

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[12] This was achieved by rescaling the values for each of the Likert responses (e.g, strongly disagree, disagree, agree, strongly agree) from 0, 1, 2, 3 to 0, 3.33, 6.67, 10.

[13] Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance abuse. *Journal of Early Adolescence, 11(1), 56-95.*

For example, parents were asked about situations when their child was misbehaving: were they likely to raise their voice, scold or yell at their child, calmly discuss the problem, or discuss alternate ways of behaving? Did they often have to punish their child repeatedly for the same behaviour? Did their punishment depend on the mood they were in?

2) Parental engagement

This indicator measures the extent to which parents are engaged with their child in learning activities. It includes information on whether and how often parents tell stories to their children, teach them letters and numbers, teach them how to read, and encourage them to use numbers in their day-to-day activities. It also measures whether and how frequently children look at books and magazines, discuss them with their families and friends, and write or pretend to write with markers or pencils.[14]

3) Family functioning

The concept of family functioning refers mainly to the cohesiveness and adaptability of the family. It concerns how well the family functions as a unit, more so than the relationships between spouses or between parents and their children. A number of studies have shown that family functioning is related to children's developmental outcomes, especially children's behaviour.

In this study, it is assessed in the NLSCY with twelve items pertaining to a family's ability to communicate, make decisions and solve problems as a group, discuss feelings and concerns, get along together, and feel accepted for who they are.

4) Maternal mental health

The well-being of parents affects their parenting style and ability to respond to and engage their children in various learning activities.[15] Mothers' well-being has a stronger effect on children's outcomes than fathers' well-being.

This indicator was based on twelve items in the NLSCY that are commonly used to measure depression. For example, it includes questions about whether the person regularly experiences feelings of depression and loneliness, crying spells, low energy levels, an inability to concentrate and sleep, and a sense of being disliked by others. The scores were coded such that high scores indicate positive mental health; that is, the absence of depressed feelings.

5) Social support

The level of social support available to parents affects their well-being, and indirectly affects their ability to function as parents and as role models within their family and community.

This indicator measures the level of support available to the respondent, and describes how much support that person receives from a community of friends and family members.

To determine this, parents were asked whether they could get help in various situations, including emergencies; whether they were able to confide in and seek advice from others; whether they felt close to another person; and whether they felt they were a member of a group of people whose attitudes and beliefs they share.

6) Social capital

A separate but related indicator, social capital is a measure of the level of support available

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14 McCain, M.N., & Mustard, J.F. (1999). Reversing the Real Brain Drain: Early Years Study Final Report.Publications Ontario.

15 Brooks-Gunn, J., Duncan, G.J., & Britto, P.R. (1999) Are Socio-economic Gradients for Children Similar to Those for Adults? Achievement and Health of Children in the United States. In D.P. Keating's & C. Hertzman's (Eds.) *Developmental Health and the Wealth of Nations*. The Guilford Press. New York

collectively to groups within a community. Thus, it comprises information about the ability of neighbours to work together to solve problems, help each other, watch out for one another's children, and provide children with role models outside their immediate families.

7) Neighbourhood quality

This indicator gauges the parents' perception of their neighbourhood as a place to raise children. It measures features such as cleanliness, safety, quality of schools and nursery schools, adequacy of facilities for children (such as pools and playgrounds), health facilities, and the level of involvement of residents. It also asks people to rate their present neighbourhood in comparison with the one they had lived in previously.

8) Neighbourhood safety

This indicator assesses the level of the parents' concern for children's safety in their neighbourhood. For example, parents were asked about the safety of parks and other play-spaces, crime rates, problems with older children in the neighbourhood, and whether they worried about children playing outside during the day.

9) Use of resources

This indicator measures the use of recreational facilities, including parks, trails, play-spaces, skating rinks, pools, camping areas, skiing facilities, amusement parks, and community centres; educational services, such as libraries, science centres, family resource centres, and drop-in programs; and cultural resources, such as art museums, plays, musical performances, sports events, and movies.

10) Residential stability

This factor was derived from a factor analysis of four variables measured as part of the 1996 Canadian Census that assessed the degree of transience of the local population. These included the proportion of people who had moved in the past five years or the past year, as well as the percentages of single parents and elderly people in the neighbourhood. It was scaled in positive terms, such that a high score indicates greater stability. The average score for all enumeration areas in Canada is 5 on the 10-point scale.

B. The relationship between neighbourhood factors and children's outcomes

In Section III, a statistical technique called logistic regression was used to estimate the relationships between family background factors and whether a child had "a good start in life". Operationally, this meant that a child was not at risk of achieving his or her full potential because of problems in one of the three developmental domains.

In this section, that analysis is extended to include the ten family and neighbourhood factors described previously. This is a fairly conservative test of the effects of these factors, as the analysis is essentially asking, "What are the effects of these factors, after taking account of children's family backgrounds?"

As in Section III, the results are presented as odds-ratios (see the Inset in Section III). For the ten scales describing family processes and neighbourhood factors, these provide an estimate of the effect associated with a one point increase on the respective scale. The results, which are based on the combined data from the seven UEY communities, are presented in Table 4.1.[16]

16 The odds ratios in Table 4.1 differ slightly from those in Table 3.1 because community factors are correlated with family background. For example, a family with a higher income generally lives in a relatively safer neighbourhood with a higher neighbourhood quality.

Table 4.1 – **The relationship between children's outcomes and family background, family processes, and community factors**

	Children's Outcomes		
	Cognitive	Behavioural	Physical Health & Well-being
Family Background			
Family Income ($10,000 units)	1.02	1.00	1.08
Mother's Education (years)	**1.08**	1.02	1.09
Father's Education (years)	**1.08**	1.03	1.06
Mother Not Working Outside the Home	**0.74**	0.97	0.68
Father Not Working Outside the Home	**0.58**	0.68	**0.45**
Single-Parent Family	0.72	0.75	**0.59**
Number of Brothers and Sisters	0.94	0.96	0.92
Family Processes			
Positive Parenting Practices	1.05	**2.08**	1.16
Engagement in Learning Activities	1.01	0.98	1.05
Family Functioning	1.02	1.05	0.99
Maternal Mental Health	1.04	**1.24**	1.08
Community Factors			
Social Support	**1.14**	0.94	0.93
Neighbourhood Quality	1.00	1.00	1.06
Safe Neighbourhood	1.06	1.03	1.02
Social Capital	0.97	**1.08**	1.01
Use of Resources	**1.18**	0.98	1.02
Residential Stability	1.01	1.02	**0.88**

Note: Figures in blue text are statistically significant at p<.10. Results are based on the relationship of NLSCY family background variables with three developmental outcomes for the 7 UEY 2001/02 communities.

Of the ten family and community factors, two have statistically significant relationships with the cognitive domain: social support and use of community resources. The results for social support suggest that a child in a family with a rating of 6.0 on the 10-point scale would be 14% less likely to be at risk in the cognitive domain than a child living in a family with a rating of 5.0 (or a family rated 5.0 instead of 4.0, etc.).

An increase of one point in "use of community resources" was associated with an 18% increase in cognitive scores. In other words, families that make use of various recreation, educational, and leisure facilities, such as pools, play-spaces, libraries, drop-in programs, art museums, and movies, have children with better cognitive scores.

For the behavioural domain, positive parenting was by far the most important factor. A one point increase on the positive parenting scale was associated with a 108% increased likelihood in good behavioural outcomes. This means that parents who monitor children's behaviour, are responsive to their needs,

and encourage independence, are much more likely (more than twice as likely) to have children without behaviour problems.

Two other factors had statistically significant and positive effects: the mental health of the mother and social capital. An increase of one point on the ten-point scale for maternal mental health was associated with a 24% increased likelihood of a child not being at risk due to problems in the behavioural domain. Living in a neighbourhood with a high level of social capital was associated with an increase of 8% in the odds of a positive outcome in the behavioural domain.

Social support had effects contrary to expectations. This situation may have arisen because parents whose children have behavioural problems may be more aware of the social support available to them, and therefore reported higher levels of support.

Finally, for physical health and well-being, none of the family or community factors were statistically significant protective factors. Residential stability had effects that were contrary to expectations, suggesting that children living in neighbourhoods with a higher percentage of transient families were less likely to have health problems. One should note that the model controls for whether the child was living in a single-parent family, which may have captured some of the negative effect normally associated with transient families.

C. Community indicator scores for the Montreal UEY site

Figure 4.1 displays the Montreal study area scores for each of the ten indicators described in this section. The figures in parentheses indicate the average scores for the seven 2001-02 UEY communities.

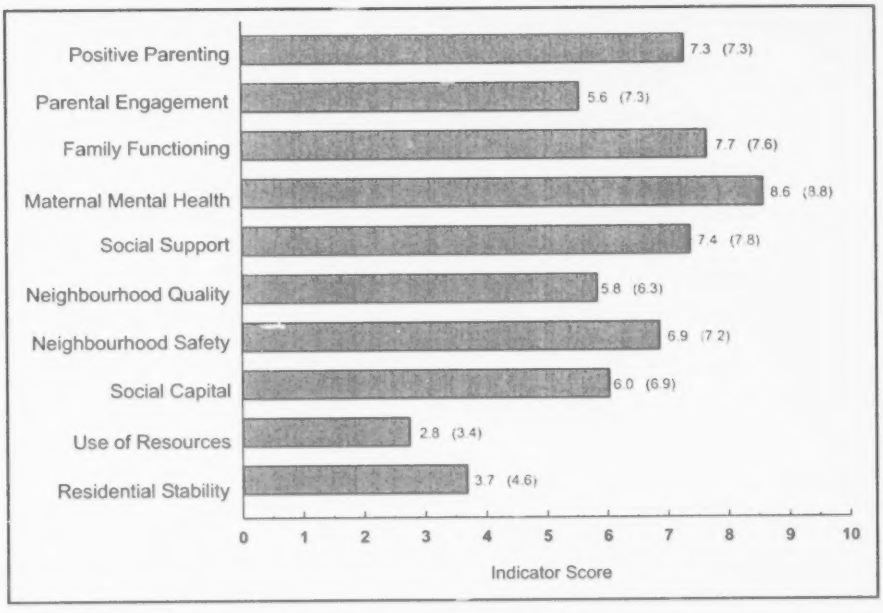
The Montreal study area had lower scores than the UEY averages for 8 of the 10 indicators. Parents tended to give their neighbourhoods low ratings on the community characteristics measured. The Montreal study area's scores were lower than UEY norms for parental engagement in learning activities (-1.7), maternal mental health (-0.1), social support (-0.4), neighbourhood quality (-0.5) and use of resources (-0.6). The scores were lower than UEY averages for neighbourhood safety (-0.3) and social capital (-0.9) in this study area, which has a relatively high number of low SES neighbourhoods and where residential stability is low (-0.9). Analyses show that social support and use of resources are important protective factors for cognitive development. This could partially explain the lower scores of children in the Montreal area on the cognitive development measures.

The only indicator on which this area scored higher than the UEY norm was family functioning (+0.1), although the difference is not significant. The score for positive parenting was the same as that for the study area taken together (7.3).

The rather low scores on two of the indicators require a closer look: parental engagement in learning activities and residential stability, which in turn can have an impact on social support and use of resources. It is difficult to explain the low level of parental engagement, since a relatively high percentage of parents do not work outside the home. The low scores on these two indicators (parental engagement and residential stability) are part of the explanation for the low scores on some of the behavioural and cognitive measures. The low scores of these young children were limited to certain aspects of development while they obtained high scores on other measures.

It is encouraging to note that the scores for positive parenting and maternal mental health were near the UEY averages. These two indicators are important determinants in how the young

Figure 4.1 – **Community indicator scores for the Montreal UEY site**



Source: Mean scores in red text differ significantly ($p<0.05$) from the average score across the seven study area (in parentheses).

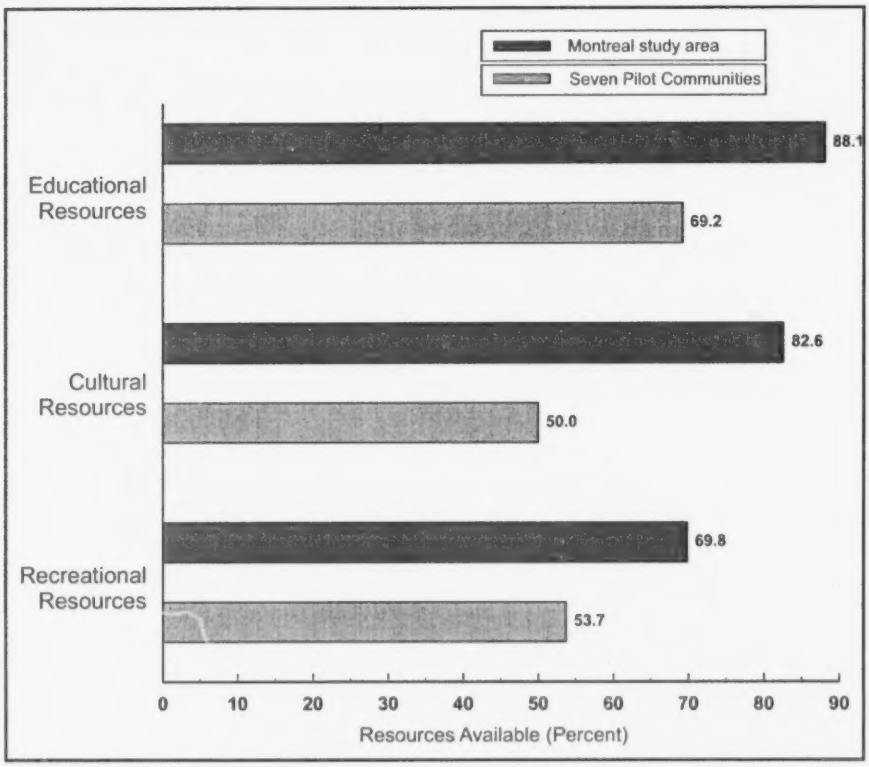
child will develop, especially in regards to behaviour in early childhood (see Table 4.1). Some studies show that they are also important in determining success in primary and secondary school.[17]

As described, there are ten indicators of family and community success. Each indicator scale has a range from 0 to 10, with 10 being a positive score. A total score out of 100 can be calculated for each community. The total score out of 100 for the Montreal study area was 61.8, which is 5.4 points less than the average of 67.2 for the seven 2001-02 UEY communities.

Because of the relatively low average scores in all seven UEY communities on the use of resources, this variable was further explored in each community to determine whether the problem stems mainly from a lack of availability of the resources. For each of the three types of resources, parents were asked, "Are most of these resources located within walking distance or within a short drive or bus ride?" The results for the Montreal UEY site, presented in Figure 4.2, indicate that children in this community have greater access to the three types of resources, especially educational and cultural resources.

17 For reviews of recent literature and results pertaining to the first cycle of the NLSCY see Willms, J.D. (2002). *Vulnerable Children: Findings from Canada's Longitudinal Survey of Children and Youth*. University of Alberta Press: Chapter 8 (The effects of parenting practices on children's outcomes by Ruth Chao and J. Douglas Willms), Chapter 9 (Parenting and children's behaviour problems by Fiona Miller, Jenny Jenkins and Dan Keating), and Chapter 10 (Maternal depression and childhood vulnerability by Marie-Andrée Somers and J. Douglas Willms.

Figure 4.2 – Availability of resources for the Montreal UEY site and the seven 2001-02 UEY communities



Source: NLSCY Community Study for the Montreal study area (SDI) and national NLSCY data (cycle 3).

The NLSCY data also covered daycare. Early childhood programs, such as those offered at daycare, can increase a child's potential to learn, thereby enhancing his or her lifelong academic and personal development.

But for these programs to be effective, they need to be developmentally appropriate and responsive to the experiences, backgrounds and needs of the children.[18] Research suggests that, regardless of a child's socio-economic status, four types of resources contribute to optimal child development: childcare centres, pre-schools, nursery schools, and kindergartens.

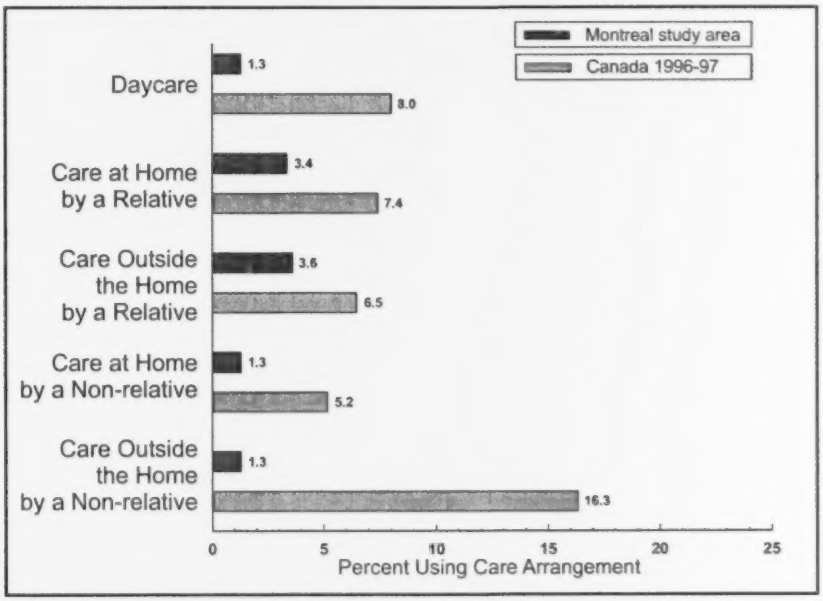
Moreover, research based on the first cycle of the NLSCY suggests that receiving daycare, either licensed or unlicensed, has positive effects on the language skills of children from low-income families. However, children from relatively affluent families tend to fare equally well across various types of care arrangements.[19]

In 1996-97, according to NSLCY, nearly one half (43.4%) of the population of 5- and 6-year-old children in Canada received care for at least part of the day

18 Doherty, G. (1997). (Zero to six: the basis for school readiness.) Gatineau, Quebec: Human Resources Development Canada, Strategic Policy, Applied Research Branch Research paper R-97-8E.

19 Kohen, D., Hertzman, C., & Willms, J. D. (2002) The importance of quality child care. In J. D. Willms (Ed.), *Vulnerable Children: Findings from Canada's National Longitudinal Survey of Children and Youth*. University of Alberta Press.

Figure 4.3 – Types of care arrangements



Source: NLSCY for the Montreal study area and national NLSCY data (cycle 3).

from someone other than their parents. In the Montreal study area, 10.9% of the children received care by someone other than their parents, which is considerably lower than the Canadian average of 43.4%. However, as mentioned above, the percentage of parents who do not work outside the home is quite high, which would help explain why they do not use daycare services as much.

Figure 4.3 displays the percentage of children in differing types of care arrangements for the Montreal sample, compared with the figures for Canada for 1996-97, derived from NLSCY. The type of care most popular in Canada-care outside the home by a non-relative-is the least used in the Montreal study area.

The Montreal UEY site has a number of community strengths: it scored quite high on the family functioning indicator and obtained a satisfactory score on positive parenting.

Although resources are not fully utilized by the members of the community, parents and children have much better access to educational, recreational and cultural resources compared to the other seven UEY communities. However, the Montreal UEY community is characterized by low scores for families and neighbourhoods. There is high residential mobility (common in low income neighbourhoods), which can cause a number of community problems (low level of social support and lack of neighbourhood safety, for example). It is hard to explain the low level of parent participation in their children's learning activities, since parents in the Montreal area spend more time with their children (a relatively high percentage do not work outside the home or use daycare services). Additional resources should be devoted to encouraging parents to get more involved in their children's learning activities and improving the general quality of neighbourhoods.

V. Looking forward

The children of the Montreal study area show signs of positive development and are relatively well prepared to start school. The Montreal study area scored high on communication skills, physical health and behavioural development. While this site has a number of strengths, there is room for improvement. Many of the neighbourhoods have high residential mobility and low socio-economic status. Parents in this study area gave low ratings for neighbourhood safety and overall quality. Although the area also has above average availability of community resources, the study indicates parents in the area do not take full advantage of community resources.

Although many Canadian communities share at least some of these broader characteristics, each community also exhibits a variety of unique features that sets it apart from others.

This diversity is one of the reasons community-based research is so important. Research allows a community to understand how well its youngest citizens are developing and lends insight into how the obtained results came about. Investments for families and children, as well as for children's development, can be monitored over time so that effectiveness and efficiency of community effort can be improved.

The Montreal UEY site can take pride in the success of its youngest children, since they achieved high scores on a number of cognitive and behavioural development outcomes. Some domains need improvement. In particular the Montreal study area has a high percentage of children with hyperactivity and lower than average scores in receptive vocabulary. The prevalence of hyperactive children is at least one and a half times the national norm according to parents' responses. There are several factors at play: a very high percentage of fathers who do not work outside the home (almost double the national rate), many single-parent families (twice the provincial and national rates), low parental engagement in learning activities, and lower maternal mental health, which translates into feelings of depression that may have some effect on the mother's affection and the time she spends on her children's learning activities. The Montreal sample results are also low for social support, neighbourhood safety and social capital. All these elements, namely the father's occupational status, two-parent family structure, parental engagement in learning activities, maternal mental health, social support, neighbourhood safety and social capital, are all important protective factors in the child's development, especially for behavioural development.

The Montreal children also scored low on the cognitive tests, particularly on the Receptive Language Test. The percentage of children with low scores was nearly two and a half times the national norm. Several factors could explain this result: a large number of children from immigrant families who do not speak French or English at home, a high percentage of mothers who have not finished high school (almost twice the national rate), a high prevalence of parents who do not work outside the home, a high percentage of single-parent families, and a low level of social support and low utilisation of children's resources. All these factors have an indisputable effect on the cognitive development of young children.

A. What makes the Montreal UEY site unique?

Several elements make the Montreal UEY community unique: its high percentage of single parents, mothers who did not finish high school, parents who do not work outside the home, and the large number of poor quality

neighbourhoods at the east and west extremities of the area. The only concentration of higher SES neighbourhoods is in the central part of the area's northern section.

The areas are characterized by low social support, often associated with poor neighbourhoods that parents deem low-quality and unsafe and where schools and daycares provide services that are considered to be below par. Although there is a high availability of children's resources, the use of resources is low. Parents rarely use daycare services; they look after their children at home. As well, the study indicates parents in the Montreal study area, do not actively take part in their children's learning activities. Thus, children benefit from neither developmental programs at daycare nor educational interaction with their parents. These factors contribute to the explanation of the scores among the Montreal sample children on certain cognitive and behavioural measures. But despite the difficult living conditions of a number of families, the children obtained good scores on some of the measures.

There is a high prevalence of children with hyperactivity and a lack of emotional maturity (for these measures, the rates were about one and a half times the national norm) in the Montreal UEY site. This is cause for thought, since it has been shown that behavioural problems that exist when a child starts school tend to persist and are a risk factor for academic achievement and an interest in school and learning. Moreover, since children with behavioural problems tend to go to certain schools in the study area, the problem is compounded. However, the Montreal UEY community did not have especially high scores for the other behavioural problems measured, and in fact the children obtained higher scores on the positive behaviour measures.

The children scored relatively low on the Receptive Language Test (the prevalence of children with low scores in this domain is nearly two and a half times the national norm) and in the domain of language development and cognitive skills. However, they received high scores on the Developmental Assessment and in communication skills and general knowledge. This indicates that the chances of these children catching up on language skills is high.

B. Summary

The Montreal study area is one of twelve communities participating in the UEY initiative. Through this initiative, valuable lessons are being learned about the needs and strengths of communities with different economic, social, and physical characteristics. With respect to early childhood development, we are also learning how communities are working to improve children's outcomes, as well as the relative success (or lack thereof) of their efforts.

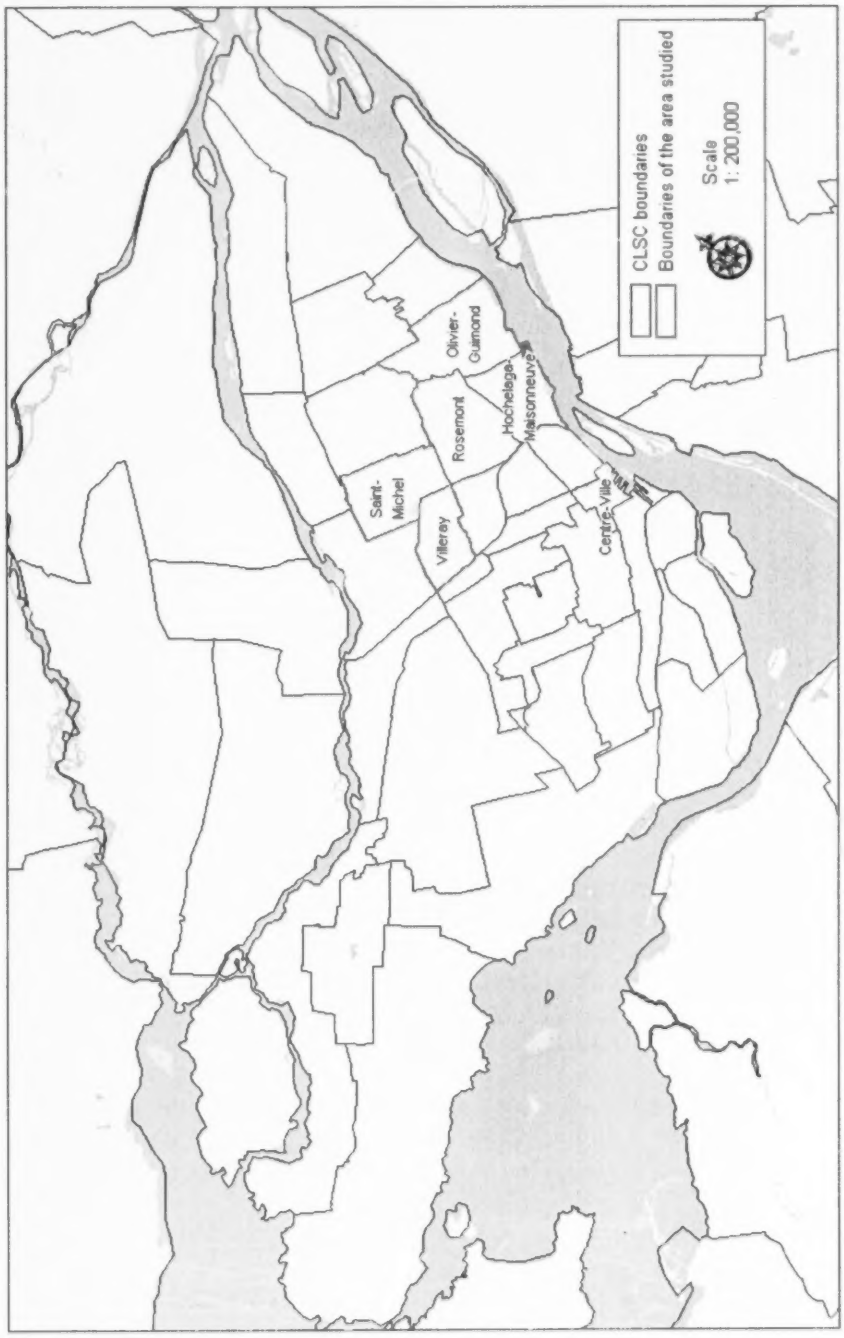
Communities will determine how their citizens will work together to improve children's early developmental outcomes based on research evidence. Results from the UEY initiative will inform discussion within communities for future action plans.

At the same time, it is a societal responsibility – of governments, educators, community agencies, neighbourhoods, and families – to make sure improvements take place for all children. Strategies that require the community to look at itself as a whole community, as well as neighbourhood by neighbourhood, will likely have more enduring effects. UEY is able to provide research results to support both.

For example, families may improve their outdoor play-spaces, neighbourhood by neighbourhood, and on a community level, concerned agencies and organizations could improve community-wide strategies to integrate disadvantaged groups. As communities document their efforts, as well as their results on children's outcomes, effective practices will be identified.

Any community's response must consider its unique features. The importance of a coordinated approach involving families, teachers, and all community members must be emphasized because each has been shown to be important in enhancing child development. Support for families with children from the larger community network is critical. Governments, community institutions, schools, and the voluntary sector in the Montreal study area must continue to work together, as each can make a valuable and important contribution.

Appendix A – Map of the Montreal UEY site



Early Childhood Development in the Montreal study area (Quebec)